# CALCITE 37



April 1993

### Newsletter

### of the

## Highland Caving Group.

(Founded 1957)

PO Box 154, Liverpool, N.S.W., 2170.

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Production - Robert Wray.

#### Editors Report.

Environmentally Friendly, Minimum Impact, are these the catch-phrases of this decade? Environmental issues have come to the forefront in public perception over the last few years, not only in major government and industry policy but in how 'environmentally friendly' are the products and services we use. Recreation activities are also being steered into a more "minimum environmental impact" mould. Phil Fleming takes up this theme and examines it in the light of caving (sic) and bushwalking.

Jenolan, Tuglow and Colong have once again been visited and enjoyable trips had. However, extra-curricular caving once again dominates this issue of Calcite. The first weeks of January saw the A.S.F. Conference held in Launceston hosted by the Northern Caverneers. Dozens of Mainland cavers flocked to the 'Island down the bottom" for several enjoyable weeks caving. Much exploration was done at Mole Creek with several significant finds, as well as just hundreds of hours of great caving. Ida Bay also bore to brunt of the onslaught. How long will it be before Arthur Clarke's house recovers. Extensive surveying was organised in Exit Cave, especially as a new section was discovered just before the Conference, and a major survey program was initiated in Little Grunt.

Thanks to all who organised and partook in the Conference especially the organisers and helpers from the Northern Caverneers, it was great. Thanks are especially warranted to Peter and Gwen Dohnt for always being so hospitable at such a busy time and always having a place for people to sleep at no warning, and to Arthur Clarke for making his backyard and house freely available for over fifty people to camp in. Appreciation is also expressed to Ian Houshold of Parks, Wildlife and Heritage for granting permission to enter restricted access caves and personally showing us some great caves.

Tasmania or New Zealand (Waitomo and Takkaka/Ellis Basin/Mt Owen/ Mt Bell) at Christmas anybody?

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The ideas and opinions expressed in this Journal are not necessarily those of the Editor, the Executive or Members of Highland Caving Group.

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At the last Annual General Meeting Ian Lutherborrow, Bruce Waddington and Chris Dunne were nominated as Honourary Life Members of Highland Caving Group for service to the Club and to speleology for many years.

Congratulations, Ian, Bruce and Chris.

# Cooleman Plain Easter (17-21 April) 1992 Chris Dunne

Present: Lindsay Matheson, Ann Mclaren, Chris Dunne, Michael Brennan, Marie Horvath, Murray Dawes, Catherine Griffith; Shane Wilcox (HSC; Fri-Sat only).

This was to be an introductory trip to Cooleman for some of the party, and at any rate, a pretty laid-back weekend. Michael and company drove down Thursday night via Tharwa-Gudgenby in the dark; Lindsay et al on Friday morning via Brindabella and in daylight for a change. Shane joined us late on Friday, and left Sunday lunchtime.

Except for one night, we had our usual campsite about 300m before Blue Water Holes (BWH) to ourselves. Since last Easter the BWH trail has been upgraded to a properly formed, near all-weather track. Thus, it was a quick drive in from Long Plain; there seemed to be a constant stream of traffic (even at all odd hours!) and passing vehicles tended to stir up a cloud of dust. Slow vehicles were given a cheery wave! We even cheered a couple of mountain bike riders who passed. Down at BWH, the rabble amounted to about 20 vehicles and, say, 60 plus people. The presence of a two-wheel drive Jaguar gives an idea of just how good the road is now!

By popular consent, we never ventured far from camp till after lunch on any day. Though Michael had been here before, he'd only seen Cooleman Cave, whilst Murray, Catherine and Marie were new to Cooleman. Therefore, these four accompanied Chris on a stroll over to the Gorge where he pointed out the entrances to Frustration and New Year Caves (CP9 and CP10) and their resurgence, Z Cave (CP7).

Crossing Cave Creek just here, they climbed the hillside above BWH and circled round to the dry flat just upstream. Then passing up Nicholl Gorge they passed Right Cooleman (CP2) to Cooleman Cave (CP1) where Lindsay and Ann caught up. All made a brief inspection of the cave (15 mins) before we continued up the gorge, past the junction of the north and south branches of Cave Creek. Some 300m up the north Branch is Murray Cave (CP3). All but Catherine and Ann made a tour of the main passage up to the sump-pretty much at its normal level (25 mins). We returned cross-country to camp, where we were joined by Shane.

As on later nights, it proved decidedly chilly after all we were at 1250m (?). The moon came out mid-evening - later each night - and spoiled an otherwise clear view of much of the sky. Both Michael and Chris have an interest in astronomy, with Michael pointing out a few globular clusters, eg. Omega Centuri. On both Friday and Saturday nights there was some very light high cloud and spectacular vapour trails from the Sydney-Melbourne aircraft. One trail, for example, left its shadow across a lower, thin cloud. Sunday night there were no vapour trails, and a heavier cloud cover came over, leaving Monday overcast.

Saturday afternoon's excursion was a walk downstream, through Clarke Gorge. Shane and Ann had a head start and were waiting at the other end as we came through. Shane has done some rock climbing in the gorge. A number of routes have been put up, but he says there are many more and harder routes possible except few climbers come here and the rock is not very clean as yet, ie. the loose, crumbly bits have yet to be brushed or knocked off. We passed Barber Cave's 'resurgences' (CP16 and CP17) and continued another kilometre downstream to the falls near White Fish Cave (CP20). Murray, Michael and Shane took a look in here; Murray venturing round the water's edge to the main part of the cave as far as the gate, which he found open. Some of us poked about in the creek near the entrance. playing at dam-building with cobbles and boulders - most already in place - to see if we couldn't divert a little more water into the cave.

We soon moved upstream a little to the bend in the river where most of the water sinks into a number of inflows in the heavily shattered western face of the bluff. In the creek is a deepish pool (1-2m) and the creek, having crossed an alluvial flat, and dropped almost a metre into this pool, turns right to follow the foot of a limestone cliff (up to 25m high in places) before plunging over the falls. There would seem to be some kind of fault here.

Despite the shattered exterior of the bluff's west or upstream end, there is a phraeatic/vadose inflow cave, which can be accessed from another, larger entrance about 15m further downstream in the southern face of the cliff. Murray, Shane and Chris had a bit of a poke at this cave, adjusting a few rocks to improve the flow. It should be noted that this cave and other less obvious inflows from the pool outside, take perhaps two-thirds of the water in Cave Creek, leaving the remainder to go over the falls in normal flow; of course the falls are very much an overflow during floods. Flood debris was also noted high up the walls of the cave we were looking in, which ends in a sump partly blocked by a boulder train.

We returned to camp by dusk, to another night of vapour trails, chill air, and passing traffic. There were even two or three trailer loads of wood ferried past our campsite in the course of the weekend. One party down amongst the rabble were thought to be desirous of roasting a bullock should one come their way; for lack of one, they were seen roasting a couple of tree trunks instead!

Sunday, Shane arose quite late, only to leave after lunch. Except Catherine who elected to study for the day (books and passing dust clouds), the rest of us walked down to the ford at BWH, then out along the old Seventeen Flat trail, past Spences Hut - now only the shell of its truss roof remains - Chris recalls when its walls were still standing, though they had a decided lean and the hut was already invaded by bush.

Near the edge of the treeline, and within view of the plain, we turned right and cross-country to intersect the south Branch of Cave Creek 500m upstream of South Branch Sink (CP32). Both Murray and Chris took a look in the narrow rift entrance - one can see perhaps 5m along this vertical rift which is 1-2m high, but narrows upward and has the stream flowing 20-30cm wide in the bottom. One would have to get mostly wet to squeeze along perhaps 3-4m and get a better look where it goes. From the entrance it seems to follow the main rift onward and narrower, or follow another, narrower cross-rift to the right.

We also noted the main cave in this vicinity (CP36). The main creek was sinking in its bed opposite CP32 as normal; the valley downstream to Ev's Cave (CP) and all the way to BWH was dry, as was the side creek we now crossed as we made our way cross-country to River Cave (CP7) in another dry side gully. A party of cavers from NUCC (National Uni Caving Club) had just exited the cave as we

got there, and many were sunning themselves up on the rocks of the gully side.

After donning wetsuits, which most of us had brought, we proceded into the cave. The rack of limestone tablets which was once bolted to the stream-bed just at the junction was seen to have been moved, but the tablets in their various gauze holders looked to be intact. Ann and Lindsay came in as far as the downstream duck-under, but declined the 'inviting' chill of a dunking - Lindsay had no wet suit, only thermals, and although Ann had a spring-suit, she also declined after trying unsuccessfully to negotiate the vertical window to the side of the duck-under - it is wide enough about halfway up, but one cannot keep from slipping into the narrower bottom and the water.

The others took a quick look at the second sump. This was up in level; Chris has seen it at a lower flow and level, but cannot recall when. Another quick trip was made to the cavern at the upstream end of the cave where the inflow sump is; this trip involves a short wade.

Back on deck (after an hour in the cave) we changed out of our wet gear and headed over toward Murray Cave. Chris noted the entrance to Glop Pot (CP6) just down-gully from the capture 'dam' at CP7. Shane had suggested, prior to the weekend, that he was thinking of dropping a ladder and having a swim around in the lake at the bottom.

We ignored it and crossed over the plain past the three dolines which overlie collapse sections in the upstream part of Murray Cave beyond its usual sump. Murray Cave functions as an overflow when River Cave is in high flow; normally waters from River Cave only flow underground direct to BWH. From the vicinity of Murray Cave we returned to camp cross-country: the girls via the gorge downstream, some west around the open paddock, and Chris and Lindsay over the middle route.

As noted above, Sunday night came over cloudy. Monday was a long breakfast and break camp, leaving around midday. In a kind of musical chairs, Michael *et al* returned via the Brindabella Road and Canberra, Lindsay and co via Tumut, Gundagai and Yass.

#### MINIMAL IMPACT CAVING

Phil Fleming

(Based on a talk given to the Scout Association of Australia, NSW Branch Senior Instructors Workshop, May 1992)

#### INTRODUCTION

The 1980's and 90's have seen an enormous increase in interest in outdoor activities. Whilst bushwalking and camping have always had some popularity, many other pursuits, once considered esoteric and the domain of the specialist few are now popular weekend activities for increasingly larger, numbers of people. These activities include abseiling, canyoning, caving, orienteering, rogaining, rock-climbing, canoeing, lilo-ing, rafting, cross-country skiing and so forth.

A key aspect of the attraction of these activities is that the satisfaction derived from physical exertion and exercise of skill (often under dangerous circumstances) is enhanced by the wilderness surroundings in which the activity takes place. From a purely technical point of view, wilderness is not necessary for any of the above pursuits. For instance, competition rockelimbing is now practiced indoors in large auditoriums utilising climbing walls, and cavers have long been known to practice the art of squeezing (and/or getting stuck) through various pieces of furniture, fences, coathangers, etc. The addition of a wilderness environment however converts the technical or "sport" aspect into an "experience" and it is this "experience" which most people seek nowadays.

Unfortunately the cumulative effect of too many "experiences" is that the wilderness environment may become degraded and start to lose the special qualities which give it attraction. This paper seeks to discuss techniques of human impact minimisation with particular respect to caving.

### MINIMAL IMPACT CAVING SOME CONCEPTS

- \* Minimal Impact (MI) is a total philosophy which dictates an approach to all outdoor activities in order to minimise humans.
- \* MI approaches to camping, caving, climbing etc all share the above common aim.

\* Caves, especially those with a lowerenergy input, represent an especially fragile wilderness which may be very susceptible to impact by caver activity.

To briefly expand on the above points, Minimum Impact (MI) is not capable of being split up into distinct water tight compartments, such as MI bushwalking, MI caving, MI camping, etc. Cavers in particular are involved in a range of activities just getting to caves. These may include camping, bushwalking, cross country driving, etc. Obviously then, a total awareness of all impacts which the caver has on the wilderness are necessary.

The main issues in MI bushwalking and camping are dealt with elsewhere, for instance in the Wilderness Society Booklet on MI bushwalking. To summarise however, some of the key issues which cavers should consider in their camping activities include:

- \* Campfires are they necessary?
- \* Rubbish-pack it in pack it out!
- \* Toilet training
- \* Overuse of campsites
- \* Pollution of water sources
- \* Litter
- Bushfires

Furthermore caves are themselves often a very sensitive environment. Many cave areas in Eastern Australia fall into the "low energy" category. This means that natural modification of the cave is occurring at a very slow rate, if at all. Low energy caves may contain ancient sediments, bone matter and archaeological artefacts which may have lain undisturbed for hundreds, thousands or millions of years. These cave environments may be totally destroyed in a very short time by caver visitation.

#### CAVING IMPACTS

Spate and Hamilton-Smith (1991) hold the view that caves, their content and values are more at threat from cavers and their activities than they are from the activities of quarry operators and other users or abusers of karst areas. This is because whilst non-caver impacts may be extreme, their impact is limited usually to a relatively small number of caves and areas, whereas caver visitation impacts are evident in thousands of caves all across the

country. These writers go on to classify caver impacts into two main types:-

- \* Direct physical impact
- \* Indirect impact

I would add a third type of impact to the list.

\* Subtle, invisible or delayed impacts

Direct Impacts include:-

- Breakage including vandalism
- \* Mud tracking
- \* Compaction
- Polishing and erosion
- Destruction of fauna
- \* Bat disturbance
- \* Dye tracing

Whilst examples of indirect impacts are:

- \* Changes to microclimate
- \* Environmental changes resulting from digs, sump lowering, connection of caves etc
- \* Effect of introduction of flora and fauna into caves
- \* Effect of introduction of food scraps into caves
- \* Disturbance of fauna populations

The third type of impact, the subtle, invisible or delayed impact, may be either direct or indirect. The important thing however is that it is not immediately perceivable. These impacts often result from things that "seem like a good idea at the time". Introduction of exotic species such as rabbits and cane toads into Australia are examples of this type of impact.

In a cave situation, a good example is bat banding, a practice which is apparently desirable from a scientific and conservation viewpoint but which is now thought to result in disturbance and possibly decrease in bat populations.

MINIMISATION OF IMPACTS - SOME IDEAS

The following are some examples of how impacts can be controlled, both by the authorities controlling caves and by cavers themselves:

- \* Party size
- Access restriction
- Wash boots and overalls
- \* Change clothes-remove boots
- Track marking
- \* Education
- Eliminate repeat visits
- \* Digs to have full consideration of environmental impacts

Webb (1991), considers the damage that cavers can do in initial exploration of caves. He lays down the following rules:

"The most important action that an individual or group can take upon discovering a new cave is to ask one question:- Do we have the necessary equipment with us to explore this cave- WHILE HAVING THE MINIMAL IMPACT ON THE CAVE?

If the party cannot answer yes to this question then they should not enter the cave but obtain the right equipment and return at a later date when they are fully prepared. Even if this means a return trip of 1000's of kilometres - DO IT! Remember, think:- Cave FIRST - cavers SECOND.

To ensure that you have the minimum impact on the cave you should do the following:-

- 1. Maximise your initial goals, surveying and track marking should be the minimum number of tasks undertaken.
- 2. Keep your exploration/ mapping party small. Carefully consider the skills of your party members. If the cave is likely to contain bone material ensure that someone can identify bone material and hence ensure that it is not trampled on the initial exploration.
  - 3. Map as you explore.
- 4. Consider the location of track markers very carefully so that they do not have to be shifted in the future. Poor track marking will lead to unnecessary cave degradation.

5. If the cave entrance has been completely opened by digging then CLOSE THE CAVE ENTRANCE when you leave the cave. If the cave is not to be gated to restrict entry then ensure that all visitors reseal the cave after visiting. The effects of opening new cave entrances may have a dramatic impact on the cave's speleothems as well as the cave fauna".

### ASF CODE OF ETHICS AND CONSERVATION

All cavers should be familiar with and adhere to this code.

#### **CONCLUSIONS**

The foregoing raises a few key points in what is a vast subject and are designed to stimulate thought, discussion and hopefully action! All cavers should be constantly alert to the impacts that they will cause and be constantly seeking to minimise those impacts.

#### REFERENCES

The Wilderness Society, Minimal Impact Bushwalking or Soft Romping in the Wild. The Wilderness Society, 1a James Lane, Sydney. TWS also run regular MI bushwalking seminars.

A Spate and E Hamilton-Smith, (1992), "Cavers Impacts - some Theoretical and Applied Considerations". Paper given to Caver Impacts Forum, Sydney, 1991. Reproduced in Australian Caver No 132.

Webb R, (1991), "West Australian Cave Exploration in the 90's". *Australian Caver* No 129.

# Jenolan 4th-5th December 1992.

Robert Wray.

Members Present: Brian Race and Family, Bruce Waddington and Family, Kevin Carder and Donna, Brett Moule, Robert Wray (TL), Phil Fleming, Jim McGregor.

Visitors: Dave Abbot, Rebecca Small, Andrew Gaunt.

Once again a trip to Jenolan. A long period has elapsed since the last official HCG trip to Jenolan, although it must be said that several Club members have been involved in independent work here or on trips with other clubs. A number of our newer members had

never been to this scenic and geomorphically fascinating place and levels of enthusiasm where thus generally high this weekend.

Brian and Family, Kevin, and Donna arrived at the Cavers Cottage in the early evening, and by the time Brett and Robert arrived with the keys to the Cottage at about 10.30 were sheltering from the rain in the garage engrossed in the nth game of Eucre.

Jim, Rebecca and Andrew arrived at the Cottage just after Breakfast Saturday morning.

Above the fireplace is a notice for the Jenolan Run, Walk, Stagger. This early morning exercise programme involves going on foot from the Cottage through the Grand Arch and Devils Coachouse and back to the Cottage by any route. As Robert and Brett had to go to the Guides Office to get the keys they decided to have a go. The descent by the walking track to Caves House was rather slippery, but a good time was still made at about 6 minutes. Time out was taken at the Guides Office, and then it was through the Grand Arch to the steps at the northern end of the Coachouse and back up the slippery track to the Cottage. The time was 19.00 minutes, a minute and a half slower than the record, but still 1 to 4 minutes faster than all other recorded times. The challenge remains!

Two parties were formed to go caving. Mammoth was visited by Phil, Dave, Brian and Bruce to the end of the Railway Tunnel and then down the Forty Foot to Oolite Cavern and Lower River. Later, a second group of Robert, Brett, Kevin, Jim, Rachel and ?? found their way to Horseshoe Cavern and the Railway Tunnel thence Grinning Monster Lake, Smirnoffs, Oolite Loop and Cavern and Lower River. Kevin, Brett and Robert crossed the River without any unintentional swimming and found their way to Slug Lake.

Crossing Lower River is *Sporting*. To remain dry one must bridge across, the walls over 2m apart, and with only 2-5cm wide footholds. Generations of cavers have come amok and plunged into the cool, fast flowing waters. Coming back is even harder! Brett and Kevin got their feet wet on the return, but only after many attempts at remaining completely dry. Come along on the next trip and try it! it is really fun.

Trudging up the road to the Cottage after 6 hours underground wasn't everybodys idea of fun, but dinner soon revived everybody.

It rained again Saturday night, but Sunday dawned crystal clear. Aladdin was looked into

around mid-morning. This cave is used quite regularly and is showing considerable signs of over-use. Robert had last visited the cave just before Easter this year, and the change in the cave in the intervening period has been extreme. Excessive muddying, not just on the path, but in areas fenced off and even almost vertical flowstones is appalling. It seems many visitors have worn "hob-nail" type shoes from the scratches on walls and floors. When the wire netting was replaced in the last year or so several areas were not replaced to afford a better view of the formation. The crystal floor area to the right of the entrance to the smaller chamber has been devastated as a result from people crawling, possibly unintentionally, into this

Major rehabilitation work is needed in this cave NOW before the damage gets any worse. There may still be time to correct some of the problems. More stringent control over parties is critically needed in Aladdin. Please be careful in future.

After Aladdin those with energy left walked northwards along McEwan's Creek toward Wiburds. Several small holes were looked at and a quick peek at the impressive meandering passage of Serpentine Cave was had. Upon regaining the surface it promptly began to rain again and thus dampen enthusiasm for the walk to Wiburds. Again the trudge up the hill to the Cottage was nearly the straw to break the camels back, why couldn't they have built it at the bottom of the valley?

An extremely enjoyable trip and a good one to introduce several new members to this fantastic karst area. It is hoped that enthusiasm levels continue to build.

Colong, 20/03/1993.

Robert Wray.

**Members Present:** Robet Wray (TL), Jason Moule, Brett Moule, Grant Moule.

Visitors: Ian Wild (SSS).

The purpose of this trip was to investigate several potential new cave entrances in the base of the limestone bluffs along the main creek upstream of the junction and to revisit parts of the main cave not seen for a long time. Several hours were spent following up leads on the surface, but to no avail. All we encountered was several hundred leaches and a couple of

holes which soon became too small to negotiate. So it was off to the main cave.

Entry to the system was gained via the upper of the bottom entrances, and we quickly progressed via Piano Cave, through the huge phreatics, and spent a short time photographing the two nice lower level sumps. Quick time was then made through Kings Cross to the Terraces where again time was taken for photography.

A visit was made into Landslide Cavern but due to the large number of bats only a short period of time was spent here.

Members of the group who had only visited Colong a few times were then educated in finding the way on to Woof's Cavern, where again photographs were taken of the Dripping Shawl and other interesting formations.

Whilst exiting Woof's on the way back to the surface one of the party Jason fell from a climb when both handholds failed. He slid 2-3m down a rubble slope and then a further 2m onto a ledge sustaining minor bruising and a sprained wrist. The patient who was also in mild shock was stabilised and the wrist strapped. The group then assisted Jason, who could walk, from the cave and back to the camp where ice was applied. At no time was he in need of urgent medical assistance, nor was outside help required in returning to the surface via the top entrance. Further no damage was done to the cave over and above that caused by the movement of a normal experienced caving party. He was fully mobile and walked out without assistance.

A full recovery has been made.

Apart from the minor accident whilst exiting the cave the trip was enjoyable with several areas visited that several party members had not been to before or for a long time. Scientifically a very interesting system, and in places a very pretty cave.

Tas Trog '93
27th December1992 to 17th
January 1993.

Jason Moule

Members of Highland Present: Robert Wray, Jason Moule, Chris Dunne, Ann

Mclaren, Sunny, Bruce and Linda Waddington, Emma and Adam, Ian Lutherborrow, Oliver and Phoebie, Kevin Carder, Phil Fleming, Cathy Brown, Michael "Flash" O'Driscoll, Vic Tim.

Tasmania is a not-to-be-missed part of Australia with superb caves, the best in the country, and scenery to match. The caving is exactly what the Tas Trog slogan implied "Longer, Harder, Deeper, Prettier". So read on and find out what we got up to, or down to!

#### Sunday 27th December.

After a long drive and 2 hours sleep, Robert and I (in the trusty Hilux) finally arrived at Port Welshpool Sea Cat Terminal at 10am just after the Michie's (SSS), Neville, Jane and Kate. Shortly after, several other SSS adventurers arrived, as did Chris, Ann, Bruce and Linda and families. Flash and Vic appeared and hitched a ride with Robert and I until the end of the Conference.

After boarding the Sea Cat we headed down to Tassie travelling fairly close to Wilsons Promontory because of the moderate 2.3 to 3.5m swell. We all appreciated to great views of the Prom. and the surrounding islands.

Four hours later, and feeling absolutely terrible along with everybody else, we disembarked at George Town. We grabbed some pizza on the way through Launceston and bombed out at Peter and Gwen Dohnt's. Thanks for the night.

#### Monday 28th.

This morning we drove to Mole Creek, admiring the Great Western Tiers along the way. When we arrived there was an exploratory trip organised to Sassafras Hill, near the council tip, led by Rod How of the Mole Creek Caving Group.

Just walking around on the hill, even if we didn't find any caves would have been worth it. It was open rainforest with green moss covering everything like a carpet. There was 14 in the group, mostly SSS and HCG, so we eventually spit up into smaller parties. We found several small caves with the largest a well decorated phreatic modified breccia choked rift about 50m long found by Robert (See Map). On the way back to the cars Chris Kemp (SSS) noticed a hole hidden by ferns in a previously explored doline. When the ferns were pushed aside there was a shaft going about 11m. Ye Ha!! New cave.

Because we didn't have any ropes a few tapes were joined and Andrew Campbell (SSS) free climbed the shaft on belay. After a short time Andrew came back from having a look around

and reported there was another shaft down which a rock rattled for at least 7 seconds!!!!!! I was already trogged up and had a watch to time the fall so down I went. We dropped another rock down the pitch as I was timing. 7 wow 8 9 10sec WOW 11 12 13 seconds FAR OUT!!! By calculations on a free falling rock this pitch should be about 700m deep. The cave was named "13 Second Pot". Robert hastily consulted to topo maps and pronounced the maximum depth for the shaft was unfortunately only in the order of only 140m.

The caravan park where everybody was camped didn't have much room left, so Robert, Flash and I camped at the Wet Cave Reserve.

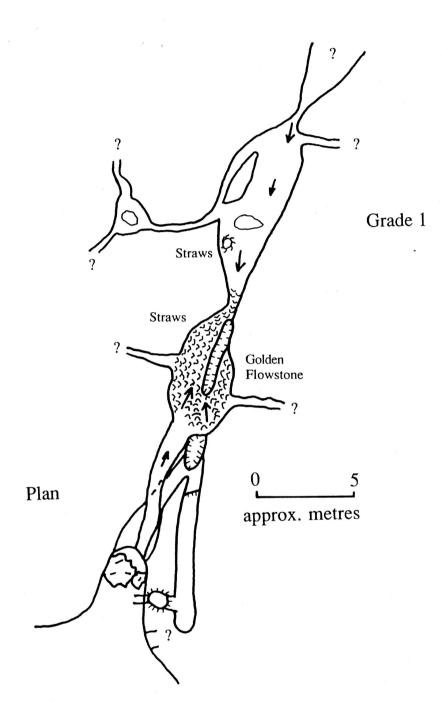
#### Tuesday 29th

We had a permit for Croesus Cave so after grabbing some breakfast our wet suits and cameras we headed out with lots of enthusiasm. After a short drive and another pleasant walk we were racing up the stream passage of this beautiful cave. The rimstones are incredible in this cave! They are up to about 8m wide and over my head deep as I found out when I slipped on the way out. We split into two groups after the rubber raft around the famous Golden Staircase. Chris, Ann, Sunny and Flash began to make their way out, while Robert, Peter Dohnt and I went to begin the survey in the "Rabbit Run" which Robert had found 3 years before. The start was muddy but the water gradually got deeper and the roof got lower until my head was just out of the water with my helmet just missing dozens of straws! The wet suit came in handy while surveying through this section. Another 150m of passage was found in the Rabbit Run before we headed back out. We got out about 3pm after a 4 hour trip.

After a bite to eat a number of us went back up to 13 Second Pot with a ladder for the entry pitch, a whole heap of rope, and the necessary bolting kit. Robert put in 2 bolts and progressed about 20m down, the very flaky walls severely slowing progress, until he came across a boulder about the size of a small bar fridge wedged in the rift. After he yelled "It looks unsafe, I'm going to knock it down", the 'refrigerator' started thundering down the rift. The walls of the cave started to shake and I grabbed for the walls because it felt that the floor was going to fall out!!, even those on the surface heard and felt it. (You should have been standing on top of it! Ed.).

#### Wednesday 30th.

Many of us spent the morning in Honeycomb Cave near Wet Cave where we found some nice



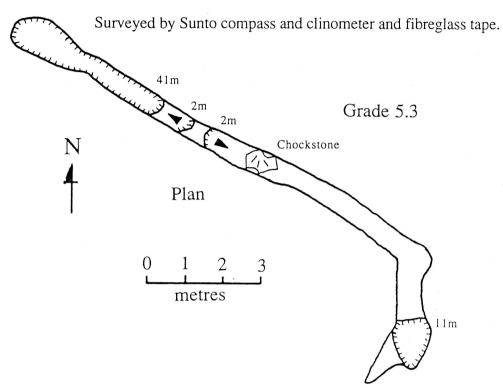
Midas Cave, MC 212. Sassafras Area, Mole Creek, Tasmania.

Discovered and Explored 28/12/1993 by R Wray (HCG), J Moule (HCG), C Kemp (SSS), A Campbell (SSS).

© Robert Wray and Highland Caving Group, February 1993.

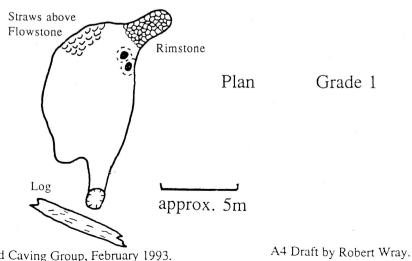
Thirteen Second Pot, MC 183. Sassafras Area, Mole Creek, Tasmania.

> Discovered and Explored 28/12/1993 by C Kemp (SSS), A Campbell (SSS), R Bridge (SSS), R Wray (HCG), M O'Driscoll (HCG), J Moule (HCG), R How (MCCC),



#### Unnamed cave

Located in doline beside 13 Second Pot. Discovered J. Moule, 28/12/1993.



© Robert Wray and Highland Caving Group, February 1993.

streamway with a little above average flow and some waterfalls to climb.

After lunch we headed to Genghis Khan armed with cameras. Vic guided us as we spent 3 hours admiring and photographing the excellent aragonite crystals which this cave is renowned for.

#### Thursday 31st.

Phil, Cathy and I went to Lynd's Cave whilst Robert, Flash and the Others from SSS continued exploring 13 Second Pot. Lynd's also has a nice streamway with waterfalls and quite nice decoration. The way through the rockpile is a little tricky - it is down at water level toward the right, then you follow the breeze through the rockpile. We returned to the surface 4 hours later and went to the caravan park where we were informed 13 Second Pot had been bottomed by Flash and Andrew with the aid if 2 more bolts and a redirection! The Refrigerator Pitch turned out to be only 42m deep - far from 700! -, with a total depth of 47m. (This pitch could be worth looking at again as potential may exist for other leads. Ed.)

We had a scrub up and headed into Launceston for the New Years Eve party. After a huge chinese feast we partied on and then bombed out a Peter and Gwen's place again.

#### Friday 1st January 1993.

Today was a nice relaxing day. We drove south to Dover, visiting historic town and bridge at Ross, and Mount Wellington. The view from the top of Mt Wellington overlooking Hobart is worth the drive up the 1370 vertical metres. Arthur Clark's house at Dover made a good base for the next couple of days. Thank's Arthur.

#### Saturday 2nd.

Ian Houshold, Karst Officer for Tasmania's Parks Wildlife and Heritage service, himself and avid caver, came with Bruce, Robbert, Flash, Cathy, Phil, Vic, and I into the HUGE passages of Exit Cave today. The purpose of the trip was to relocate and mark old survey stations to be used in the current survey of the system. It took an hour of walking through pleasant forest (the notorious swamp of many trip reports! Ed.) to get to the entrance. Remnants of an old wooden logging railway are still visible along the way. Once in the cave we detoured into the Ballroom where there are some amazing pendulites. After a puick look at the base of Mini Martin, IB 8 (the vertical entrance) and more HUGE passage Base Camp was reached where everyone had a rest, some hot soup and tea.

We went to have a look and explore a little-known passage of Eastern Passage. Eastern Passage is a major tributary of Exit which had recently been dye traced from Little Grunt Cave (IB. 27), and Bender's Quarry. This side passage had been discovered over 30 years ago, and as far as is known had not been entered since.

A shaft about 10m deep was found so a couple of tapes were tied together and I climbed down on belay.. There were some small holes at the bottom but none passable by humans. The shaft continued straight up for over 30m. Whilst I was down the shaft a way through the rockpile at the end of the passage was discovered. On the other side, a strong breeze was coming from a small hole in the floor which was blocked by some boulders. At first excavations proved unsucessful untill Rabbit found the right place to dig. A lot of heaving and grunting was done until the boulders were moved far enough to enable a body to descend safely. Once through the hole I climbed about 7m down into an unknown stream passage!! Only Robert and I explored the area as we were the only ones capable of fitting down through the rockpile!

The stream was followed about 60m upstream until it was blocked by a draughting rockpile which try as we might we couldn't find a way under, over or through. There is a draughting and showering aven about several metres diameter and 30m+ high near this rockpile. Downstream, after 50 to 60m of stream passage and a rockpile room was a sump. A further horizontal passage with small streamway was found leading off the rockpile room which went for a further 80m before being blocked by a further draughting rockpile. This passage was very muddy and had good mud formations which were avoided with great care. After Robert and I climbed out of the new section we headed back to Arthur's for a hot shower and dinner.

#### Sunday 3rd.

We woke to a rainy morning so instead of beating the leeches off with a shovel and trying to drown on a Midnight Hole - Mystery Creek through trip, Robert, Flash and I drove to Frecinet Peninsular. This is a very nice area with great scenery, and is worth visiting for a couple of days walking.

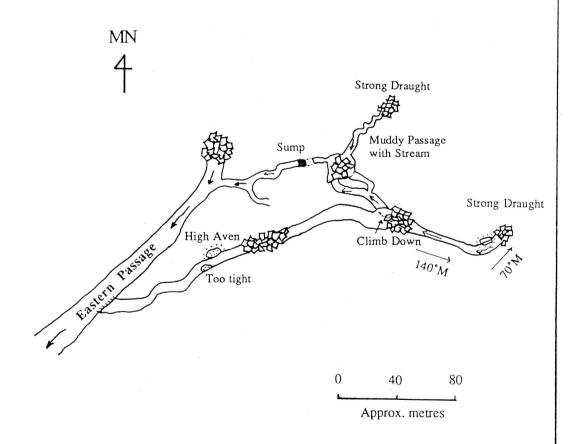
#### Monday 4th.

After camping the night near the lighthouse at Frecinet, we drove up the east coast to Apsley Gorge where we found it was a 3 hour walk to get to see the gorge and didn't have enough time to do the walk. We then drove to

Streamways beyond rockpile in side branch of Eastern Passage, Exit Cave, Ida Bay, Tasmania.

Discovered J. Moule, R. Wray, I. Houshold, P. Fleming, M. O'Driscoll, B. Waddington, C. Brown, 2/1/1993. Explored J. Moule and R. Wray.

Grade 1.



© Robert Wray and Highland Caving Group, February 1993.

Launceston, did some shopping, then headed to "Glenara" for the Tas Trog Conference.

#### Tuesday 5th.

The first full day of the Conference. After a huge breakfast the Conference was opened by Robin Williams and the presentation of the papers began. After dinner we went for a drive to Cataract Gorge where we bumped into the Mystery Bus Tour group! What a mystery! The Gorge has a nice walk through it which is lit at night.

#### Wednesday 6th.

Another day of listening to papers, some of which were very interesting (especially mine?? Ed.). A very nice dinner at the Country Club Casino where the service was very good and everyone treated like a VIP. After making a fortune (Robert won \$1) we headed back to Glenara for more socialising, cavers games (who can get trapped in the kitchen cupboards for the longest??), and composing caving songs.

#### Thursday 7th.

This morning the last of the papers were presented, and the conference was closed at lunch time. If anybody wants more information, the HCG Library has a copy of all the papers and the Conference Precedings.

After lunch was a trade display and Speleo Sports. HCG entered two teams: The Destructo's with Robert, Ann, Flash and I and the Minimum Impact Team with Phil, Ian, Bruce? and Cathy. Both teams didn't go too well, but it was a lot of fun.

Another inter-state team was put together, the Micro-bods, comprising Kate Michie (SSS), Daryl Pierce (VSA), Emmerson Clark (TCC) and I. The team struggled through the well put together course and came first!!

That night the Cavers Diner was held. Prizes for Speleo Sports were presented, we won a Petzl Zoom, a great prize for a bit of fun. The photographic prizes were also awarded and Brett Moules photo of Webubbie won the Chamber class.

#### Friday 8th.

Slept in and missed out on a huge breakfast. There was plenty of food at the conference and nobody went hungry. The whole conference was well planned and seemed to go smoothly, except for the tent in which the papers were presented. It had to be covered for the slide shows and was like a sauna at some stages.

Flash and Vic were bade farewell in their return to Scotland and we picked up some more groceries. We then drove to Devils Gullet west of Mole Creek. Mt Ossa, Mt Pelion east and west and Cradle Mountain can all be seen from this nice lookout. Nearby was Lake Mackenzie and then we returned to Wet Cave for the night.

#### Saturday 9th.

Dick Dwyer led a trip into the famous Kubla Khan with Jay? (WASCA), Phil, Ann, Cathy and me. This was a work trip so five large plastic tubs and some scrubbing brushes were taken in through the top entrance. The tubs only just fitted through the tight bit with about 15mm clearance which made it "interesting" manoeuvering them. They were lowered down the first pitch and placed at the various "washing stations" through the top section of this incredible cave.

We photographed the Opium Den, Forbidden City, Silk Shop, the Khan's Army, and on to the HUGE Xanadu Chamber with the Khan and the Beagum. We exited via the top entrance. Kubla Khan lived up to its reputation again with its spectacular and huge formations.

#### Sunday 10th.

Robert, Kevin and I went up to the beginning of the walk into the Walls of Jerusalem. The weather came over cloudy and began to rain so we decided it would not be wise to walk up to the Walls. As an alternative we drove to the Arm River Falls which were very nice, and we had a look at Rowallan Dam.

On the way back, Robert showed us an impressive inflow cave called Rubbish Heap, MC 27. This cave was known to end in a silt and log choke after 35m, but the bottom had been punched in and it kept going!! I was the only one trogged up, so in I burrowed clearing logs and debris as I went. After 3 short digs and about 1 hour later I managed to get through "The Trash Compacter", a very tight vertical squeeze with a howling gale through it. I returned to the surface and had some lunch. then headed back down with lots of enthusiasm. After more digging I broke into a low crawly passage with cobbles on the floor which after a considerable distance suddenly opened into a large chamber mostly filled with rockpile and mud.. Some quick exploration was done and I crawled back out to tell the good news.

That night Robert, Russell Bridge (SSS), Andrew Marsh (CQSS), Chris Norton (SUSS), Jay and I returned to the cave to push the exploration and commence the survey.

#### Monday 11th.

Chris, Robert and I drove to Cradle Mountain today and walked to the top. The weather closed in during the climb beginning to rain and snow, and the view from the top was only 10m. After a wet 5 hour walk we went back to the caravan park and and a nice hot shower.

#### Tuesday 12th.

Today, Rob Squibb (NC) took Peter Dohnt, Robert and I into Wet Cave and showed us a nice well decorated section. Resurfacing 4 hours later Robert, Chris Norton and I packed camp and went to Rubbish Heap to continue the survey.

Chris teamed up with us for the drive down back down to Arthur's at Dover, arriving at 4am.

#### Wednesday 13th.

After 4 hours sleep a large group of us went into Exit to push and survey to new passage found two weeks earlier, whilst Ian Cooper (SUSS), Chris, Robert and Michelle? (SUSS) did a big survey trip into Little Grunt, IB 23. At Base Camp we split into smaller survey teams; Kate Michie, Brian?, Russell Bridge, Andrew Campbell (SSS) and I surveyed the mud passage. Other teams were surveying the main Eastern Passage and pushing the end. The trip was 9 hours, after which we bombed out at 3am.

#### Thursday 14th.

Another 5 hours sleep. Later 9 of us went to Loons Cave (IB 2) to survey it. After the long and tedious 5 minute approach march and paying off the porters we abseiled into the 27m top entrance. This cave has a muddy stream passage with some reasonable mud-covered decoration. We surveyed about 1/3 of the main passage then everybody was starting to get cold, so we gave up the survey and had a look at the rest of this mud wallow.

After having a look at the rockpile we went up the left hand passage which started in knee deep mud then progresses to waist deep, good stuff! The mud had a greeny tinge to it in some spots, and had the consistency of sewage. We soon headed back out via the bottom entrance whilst others prusiked out the top hole. Reassembling the porters we force-marched the 30 seconds to the cars after 4 hours underground very muddy, but satisfied.

#### Friday 15th.

Ian Cooper, Robert, Chris Norton and I decided that we were crazy enough today to tackle Little Grunt to continue the survey. We entered at about midday and after a lot of squeezing and grunting managed to exit about 9 1/2 hours

later. Some of the pitches have interesting take-off points. There is a full report in this issue. Some of the others were sensible enough to finish the surveying in Exit.

#### Saturday 16th.

After recovering from Little Grunt Robert, Chris, Emmerson and I headed off to Midnight Hole. A half hour walk up the hill which is 200m higher than the exit is required. The pitches gradually build up to the dramatic sixth and final 49m shaft down the middle of which hangs the rope. Excellent! From here the ropes are packed away and the "Match Box Squeeze" negotiated. (Not really a squeeze, but a damp and VERY windy crawl. Ed.) Mystery Creek was found and after a nice stroll up the streamway, we walked back to the car. A 200m+ deep cave with a 1/2 hour walk each way all under 4 hours car to car, not bad! This was a nice cave to finish the trip with.

We re-packed the Hilux at Arthur's then drove to Launceston dropping off Chris, then spent the night at Peter Dohnt's again.

#### Sunday 17th.

We were awoken by the 'baby alarm', had some breakfast, and then drove the hour to Georgetown to cross Bass Strait on the Sea Cat, this time with a 1.5m swell and a nice smooth trip.

We detoured via Wilton's Promontory where there is some beautiful scenery then headed on the long drive home. At Lakes Entrance we bumped into Bruce and family whilst we sat by the water having dinner. We got home about 3.00 am Monday morning.

This was a superb trip which was thoroughly enjoyed by everyone who participated. Tassie ie an excellent caving region well worth visiting and re-visiting. I liked it so much I'm heading back at Easter and maybe at Christmas too!!

# Croesus Extension - A Return. Robert Wray

Croesus Cave, Jewel of Mole Creek; after Kubla Khan one of the most well known of Australian caves. Two kilometres of expansive river passage, innumerable gour pools, shawls straws and huge golden flowstone cascades.

Croesus has a deserved reputation as one of the finest through-trips in the country, the dominantly spacious passage, fantastic decoration and relative lack of mud make it a fine caving experience. There is however a little known part of Croesus visited by less than a half dozen people and markedly different to the main cave passage.

Three years ago in a previous visit Robert and Peter Dohnt explored the cave on a fairly typical photographic trip. Entering by the bottom entrance way was made to the limits of the cave, but without the aid of a survey they were unaware of the extent of the cave. A detailed survey of the cave has only recently been generally published (Jackson 1990) and is now distributed by Parks, Wildlife and Heritage with permits as part of the Management Plan.

Whilst exploring the low muddy upper reaches Robert followed the obvious stream passage through a muddy crawl and thence a swim around a corner to a dry, highly decorated chamber with a breezing rockpile on the right and the stream continuing off to the left. See Calcite 36. Main lamp problems forced a withdrawal after a cursory exploration and small cairn was constructed in the streamway.

The area looked little visited and probably virgin, but the find was not immediately published as the true significance was not immediately realised. A return trip when Robert visited later in the year was planned. Unfortunately plans changed, and the extension was not re-visited in 1990. Late in 1991 Peter mentioned the trip to members of Northern Caverneers, and caged disbelief if the existence of the area was shown by people who knew the cave well. Private surveys of the cave were consulted and these didn't show the passage. Only then was the significance of the extension realised and a trip undertaken which confirmed the find. Only a cursory exploration was undertaken.

In the week before Tastrog '93 Robert, Peter Dohnt and Jason Moule returned and began to survey the find. It was soon realised that the extension was bigger than at first thought and the survey was abandoned in preference to exploration.

At this time it was learned that Roland Eberhardt independently discovered the extension around early 1992 (R Eberhardt pers. comm. Jan. 1993). Roland explored the passages to the large rockpile room at the current limit of exploration.

This section of the cave is not shown in the published 1990 survey, along with the lack of

any signs of previous human visit when first entered by Robert this indicates the area was probably discovered in February 1990.

#### Geomorphology.

The extension is not fully surveyed but is estimated to be several hundred metres in length with potential for more finds.

From the passage near the base of the abseils from the upper entrance a muddy crawl leads to wet passage on the true left of the stream. From here a 11m wallow/swim in a 5m wide 0.75m high streamway leads to a left turn where the passage dimensions reduce to 2m wide and 1.5m high, only 0.4m being airspace. A further 23m of swim and crawl leads to a well decorated chamber of much larger dimensions.

In the chamber one wet passage leads ahead but closes down whilst the larger and main stream comes in from the left. On the right is a large breezing rockpile, highly decorated in places. This has been cursorily explored but nothing significant found apart for calcified bones of a what appears to be a small mammal. This rockpile may be associated with collapse from either of the upper entrance dolines.

Continuing upstream the stream passes through rockpile and a tight, sharp constriction. In this area are several large high level rockpile chambers totally unlike the general nature of the majority of the cave. Breakdown in these areas is relatively unstable and care should be taken. Much of it looks quite "fresh" and shaley and may be relatively young.

The stream can be followed a little further to where it disappears under a rockpile in a moderate sized room, from memory about 20m across and 10 - 15m high. Under the opposite wall is a pool from which the stream flows. Cursory examination suggests it may be a sump and diving may be possible. High in the roof of the room is a possible continuation passage, and a breeze seems to emanate from here. To enter this passage would require a climb of about 10m up loose rockpile and wall. It was considered too dangerous at the time.

Cobbles and gravel of dolerite and quartzite were noted in this room indicating a surface connection at some time in the caves history.

The location of these rockpile chambers with respect to the surface morphology is as yet unknown. However it can be speculated that the collapses may possibly be associated with the uvalas on the surface between the top

entrance and the Mersey Forest Road (Liena 1;25 000 G.R. 3695). Is it possible that there once existed a swallet in this area?

The current stream through Croesus is definately underfit, ie. it is currently smaller than at some time during the caves history. Kiernan (1990) posed the question of whether Kansas Creek, which now sinks into Rubbish Heap Cave several hundred metres upsteam of these uvalas, once flowed along the surface further and into a now blocked upstream swallet of Croesus Cave. If this was the case, and it is highly likely as there is only a 5m high divide between the dry valley of Kansas Creek downstream of Rubbish Heap and the uvalas above Croesus, this would account for the both cobbles in the cave and the previously larger stream. The recently discovered extensions also suggest this may have been the case.

It is surprising, no, it is absolutely unbelievable that this part of the cave was not discovered many years ago, or at least during the preparation of the published survey. The stream flowing from this part of the cave is the main stream, indeed if one examines the morphology of the passages in this area it is clearly evident that the route from the upper entrance is itself a side tributary passage which runs parallel with the main streamway for a reasonable distance. Dividing the two is a blade of bed-rock through which are several holes giving access to the parallel main streamway. Several other smaller tributary streams converge with the main streamway in this area.

This area of the cave is not as pretty as the sections further downstream, is relatively low, wet and uncomfortable and in places muddy. These may be the reasons the new extension remained undiscovered for so long. The new question that now needs answering is how much further does the cave actually go?

Kiernan, K. 1990, Underground Drainage at Mole Creek, Tasmania. Australian Geographical Studies, Vol 28, p. 224-239.

# An enticing glimpse of the giant under the Rubbish Heap.

Robert Wray and Jason Moule.

What would you expect to find if you followed a five metre or more wide stream bed onto limestone and into a large cave at the base of a 50 metre high bluff? What if the stream only flows during spring snow melt or in cases of extraordinarily heavy rain, but when it does it moves very large tree trunks? Further, imagine a scenario with the above circumstances and at least three 1km plus long perennial outflow caves resurging about 100m lower and less than 2km away, with a proven dye trace to one of them. What does this all suggest to any caver with an IQ greater than that of a carrot? We'll let you visit the greengrocer then formulate your own answer. Firstly, some background information.

In the course of his previous visit to Mole Creek (Calcite 36), Robert and Peter Dohnt entered Rubbish Heap Cave, MC27. This truly impressive entrance chamber is over 40m long and 20m wide and high taking the flood flow of Kansas Creek during periods of heavy rain and snow melt on the Great Western Tiers. The volume of water sinking into the cave has for many years indicated a sizeable system lurked under the hill, but (there is usually a but) the way in was blocked by huge tree trunks and possibly tonnes of silt and debris. A great dig if you owned a bulldozer, dredge and small construction company. Three large caves exist nearby, Tailender, Croesus and Lynd's, and a dye trace had confirmed the hydrologic connection of Rubbish Heap to Lynd's about a kilometre or so away but there was no way on.

Whilst at Mole Creek this year we had time to kill so Robert decided that as we were in the area we could 'have a quick look into Rubbish Heap to see a big cave that goes nowhere'. Outside the cave was ample evidence of recent flooding, more tree trunks and large amounts of debris well above the cave entrance at the base of the bluff. Inside further changes were apparent, sediment banks had been deeply eroded and probably several tonnes of sediment was missing!! Most spectacularly there was a large hole in the floor at the base of the cave with a strong wind gusting forth that wasn't there three years ago. Yippee!!!!!

Like a rat up a drain pipe Jason was down the hole and through the unstable remnants of the log jam. Robert followed, crawling over rounded cobbles in a steeply descending dry stream passage 2 - 4 m wide and 0.5 m high. A log choke in a very tight vertical squeeze, The Trash Compacter, halted progress for a few minutes, but then Jason was through and into about 200m of remarkably straight triangular crawl-through passage. This passage was firstly horizontal then trended upwards until it abruptly opened into a very large chamber estimated at least 60 - 100m long, 30 - 50m high and 20 - 30m wide. A quick look around

and Jason headed back to Kevin waiting at the squeeze shivering in the wind.

The news of the discovery was understandably well received by the few locals and hordes of 'Mainlanders' at the Mole Creek Caravan Park. None of the locals had been to the cave in a considerable time but large amounts of mud and flood debris had recently been noted in Lynd's Cave, but at the time its significance wasn't realised (R. Squibb and H. Shannon comm). Last spring had been exceptionally wet and it appears that the volume of water flowing into the cave had caused the entrance chamber to overflow and the log and silt choke to burst, possibly quite suddenly, flushing an enormous quantity of water through Rubbish Heap and into Lynd's. Hence the flood debris in Lynd's, a cave never known to flood.

Enough people volunteered or were conned ("...huge run through cave.") to begin surveying and continue exploration that night. Jason, Chris Norton (SUSS), Jay ??? (WASGA), and Mick Macrobb (VSA) returned to the large chamber to descend a climb but found it went nowhere. Robert, Russell Bridge (SSS), and Andrew Marsh (CQSS) followed surveying. During this time the breeze had reversed and diminished but was still noticeable. The cave was sucking near the entrance but blowing out near the chamber. Chris reported the breeze became confusing in the area around the side passage half way along.

The survey was continued to the large chamber on a later trip by Robert, Jason and Chris but no further significant discoveries were made due to lack of time.

#### Geomorphology:

Rubbish Heap cave is structurally and geomorphically extremely interesting. It is currently 279m long and 21m deep, but must be much longer. The connection to Lynd's has been hydroligically proven, with a transit time of only 70 minutes for dye under high flow conditions (Kiernan 1990).

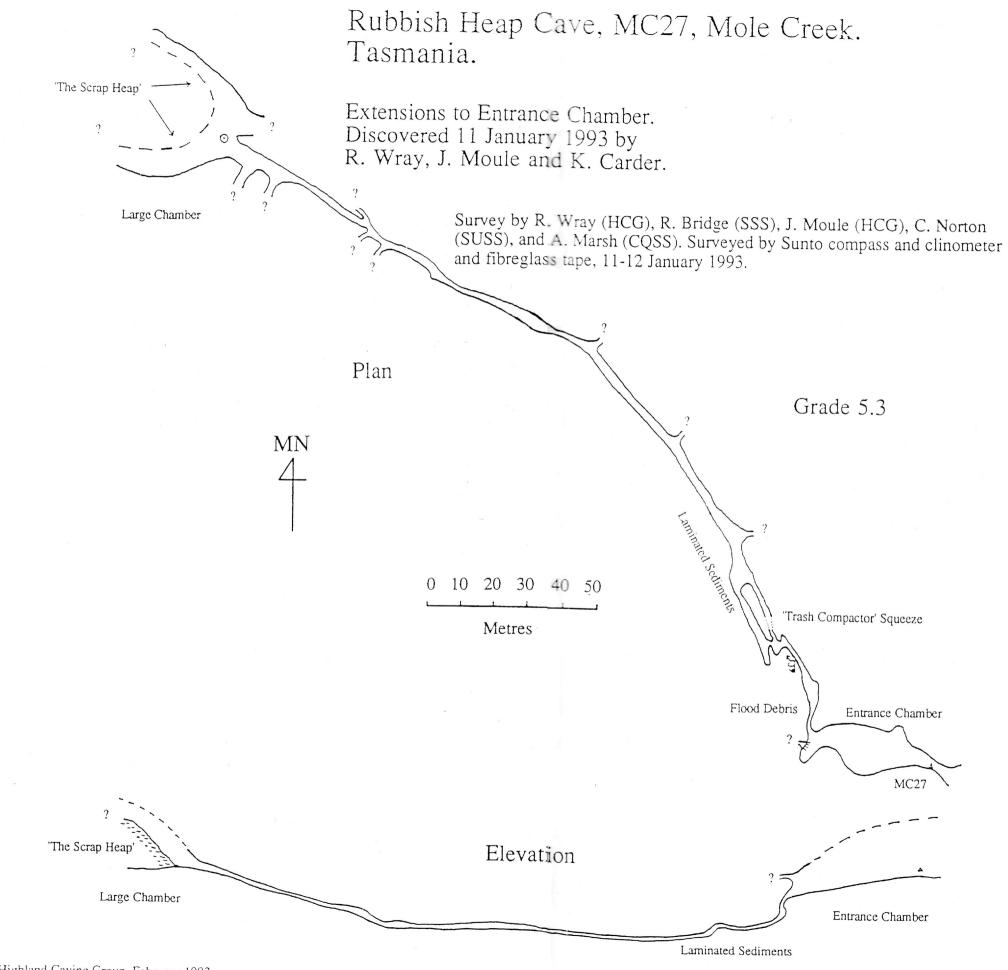
The large entrance chamber descends steeply and quickly assumes the much smaller dimensions of the steep initial streamway. This rapid reduction in size can be most easily explained by the aggressive waters flowing off the non-karstic rocks quickly reaching equilibrium with the carbonates. Thus the bulk of the solutional attack is concentrated in the first tens of metres of the cave. An alternate thesis is pounding of water in the entrance (see later) accelerates solution here.

Extensive scalloping of the walls is found throughout the cave, especially in the initial streamway where it indicates flow into the cave. Direction of flow shown by scalloping further into the cave near the large chamber has been also inward.

The bedding and joint control within the cave is fantastic and needs further study. The following observations are preliminary. From the entrance chamber the passage turns abruptly north-west at essentially 300 degrees (along the strike) and then deviates only a little from this direction. This has the cave trending almost directly toward Lynd's. After the squeeze which appears to be between a joint and a dropped block, there is a short steep climb up. From here the gradient flattens off to essentially horizontal and the right hand wall/roof is controlled by a series of less competent bedding planes alternating one to the other. The left hand wall is controlled by joints perpendicular to this bedding. The passage from here is of almost continuous triangular section. There is one short section where the passage joins a parallel passage, enlarges and there is a change of level. Laminated fine sediments are found here.

Much of the main passage appears to have been significantly larger at some time, in a similar manner to Croesus. The floor of the passage after the squeeze is cobble, gravel and finer sediment, with no significant bedrock flooring. In many places holes and slots may be seen leading down the walls below floor level to lower reaches, especially along the western wall. Sediment appears to have filled the passage almost to the roof, with the result that the caver is crawling along the top of this sediment pile.

The large chamber is at the level of the entrance and contains a huge talus/mud pyramid, The Scrap Heap, in its centre. This pile is dominantly very clayey with most rock fragments being weathered limestone. From memory large volumes of non-limestone rocks are rare or absent. One side of this pile has a wide canyon 3m wide and several metres deep incised into it, presumably from large volumes of water cascading down from above. This chamber also appears to have the triangular cross section found in much of the cave, but on a larger scale. Climbing up the Scrap Heap is slippery but possible and reveals more of the chamber including some nice decoration. Long straws, helictites and one shawl at least 5m long were noted. The upper chamber has not been fully explored, and numerous leads exist in the lower sections. Organics were not noted in the highest parts of this chamber indicating it is above flood level. This, and the absence of



any air movement here may indicate there may not be a surface connection nearby.

This cave contains much organic debris, namely logs, twigs, leaves and ferns and a large volume of imbricated allogenic and exogenic (limestone and other) cobbles and gravels including quartzite and the ever present dolerite, all contributing to making crawling painful. This is not unexpected as Kansas Creek drains much of the non-karstic regions on the north-western flank of Western Bluff along the Great Western Tiers. Most of these coarse sediments are rounded to sub-rounded, thus indicating travel for at least a short distance in an energetic stream environment. The intermittent nature of the streamsink is not a problem accounting for this, the presence of large logs and other debris at the cave entrance and well into the cave show that great volumes of water flow a times along the creek, presumably as stated earlier during spring snow melt on the alpine areas high in the catchment and during heavy storms. Wetter climates during the peak of the last Ice Age (18 000 to 25 000 years ago) and during the Pleistocene when much of this area was glaciated need also to be considered. Glacial meltwater may have also been important here and in the development of Croesus Cave downvalley.

Along with these coarse gravels are large volumes of finer sand, silt and clay sized sediment, much of which is laminated. Numerous sediment banks occur in the entrance chamber, and several are perched outside the entrance along with large piles of water laid leaves, bark, twigs etc. These later deposits indicate the last flood overflowed the large entrance chamber, but probably didn't reach a level great enough to overflow the doline to continue along the dry valley below the bluff. Flood level is also indicated by silt and other fine debris coating the walls and floor in the lower parts of the large chamber corresponding to the level of the flood sediment in the entrance. These sediments are also found about 1/3 the way along the crawl. Please avoid.

The entrance chamber sediments are several metres thick, and in places moderately well stratified and sorted layers of gravel and silt alternate. Toward the lowest point in this chamber are more large logs, and these appear to have jammed across the passage at one time aiding the accumulation of the silt and gravel, thus blocking the cave. When this last occurred is unknown, but could easily be determined by 14C or TL dating. These logs eventually rotted, and pressure build up behind this obstacle during the last flood must have been enough to re-open the cave. This cycle of

blockage and opening may have occurred numerous times in the past. Whilst the passage was blocked, water would have drained into the lower passage slower than it does when it was open, the constriction resulted in the repeated flooding of the entrance chamber, pounding of water for a time and the deposition of much of the sediments found here.

Recent flood debris high up in Lynd's Cave a cave never before known to have flooded (H. Shannon *pers comm*) can be fairly safely associated with this recent re-opening of Rubbish Heap.

Extensive and large scalloping of walls is common in the cave, especially in the streamway below the entrance. This cave has taken large volumes of water for a long period, possibly more frequently than at present. Pleistocene glacial meltwaters from the Great Western Tiers is the obvious source.

As has been earlier discussed (Kiernan 1990, Wray, this volume), Rubbish Heap appears to be a higher capture of Kansas Creek which may have once flowed on the surface into the uvalas above the upstream limits of Croesus. Rubbish Heap, and possibly Lynd's, may thus be geomorphically younger than Croesus. This point however needs further study. The underground hydrology and speleogenesis of Rathole and Tailender, the waters of which appear to originate in the sinking of Vanishing Creek nearby, need further examination as the ancient stream responsible for Rubbish Heap and Croesus may also have played a part especially in Tailender.

#### Further Prospects.

Excellent! The entrance of Lynd's is about a kilometre away and 100m lower. The volume of large flood debris through the cave suggest high water flow volumes. Scalloping in the passage after the entrance chamber also indicates this. Negotiable passage most of the way to Lynd's could be expected. The recent sediment flushed into Lynd's is also suggestive of a negotiable connection.

Several passages lead off, one of these goes for at least 20m trending downward. Another 2/3 into the cave has logs jammed across it, drops at least 3 - 5m and is unexplored. These two could be the same passage. Other leads exist but many may just lead down to lower sediment filled sections of the main tunnel. The best places to look for the continuation, and it does exist is possibly in the lowest section of crawlway, or in the large chamber. Somewhere in this region the water heads off on the next part of its journey toward Lynds. Scalloping indicates the flow of water into the

large chamber to have been considerable and continuation of the cave may in fact be found in the chamber and not in a the lower parts of the main tunnel. However, the lack of large organic debris in this part of the cave, and opposite directions of airflow in the chamber and first section of crawlway during one of the visits, appear inconsistent with this hypothesis. Further leads exist off the large chamber but this area has only been cursorily explored.

This cave floods to the roof, the danger of being in the cave during snow melt on the Western Tiers or during heavy rain cannot be over-emphasized. The only safe place is high in the large chamber, but you might be there for some time whilst the waters subside.

You need to be fairly thin to get through the squeeze, and it takes about a half hour flat out crawling to get to the large chamber.

The perched logs and sediments outside and in the entrance chamber are relatively unstable and liable to move during the next heavy rain. There is thus the extreme likelihood of the cave re-blocking itself in the near future, probably this Winter or in the Spring. These silts and gravels can be expected to block the passage more thoroughly and possibly for a longer period than the recent log jam.

Two things can therefore be expected. Firstly, whilst the cave is open extremely heavy flow can be expected to flush further debris and sediment into Lynds Cave. Ascertaining where this sediment is to be found in Lynds may help in the connection of the two caves. Management of the sediment in Lynds may also need to be considered. Secondly, the high probability of Rubbish Heap re-blocking itself in the near future should entice the local cavers to make the exploration and survey of this cave an important priority.

Robert is very interested in the structure of this cave and would appreciate a copy of any original survey data and maps made during further exploration of the cave.

Kiernan, K. 1990, Underground Drainage at Mole Creek, Tasmania. Australian Geographical Studies, Vol 28, p. 224-239.

#### Little Grunt - an Ida Bay Classic! Robert Wray.

12 midday, lay out the gear. Charged battery (pity about no carbides), spare torch, food...lots of energy needed...how long?, 9 hours, 12 hours, 18?, harness, descender, ascenders, thermals, furry fibre-pile suit, oversuit, gloves, boots....Yes all here. Put it all on and fill pack with the extras.

Musn't stand in the midday sun, rather hot. Lets go guys, Ian, Chris, Michelle. Down the boulder slope...easy does it...under the tree, slip in the mud, remove the leeches. Another tree, thick rainforest, slip again.

The doline at last, this is it. Thread descender, turn on light, step out and abseil, follow the others. 4 metrè drop, scramble down the loose slope, here's the next short pitch. "Off Rope". Number three, ah nice rebelay. Clip the bolt, hang from cows-tail, change rope, abseil again.

Another short drop, yet again... getting better, rope not so gritty. New rope, 50m deep already? Funny sounds from others below. Longer pitch, tricky start but descend down the middle of nice shaft. Where to now, follow rope... you must be joking??? down there? Remember important appointment several thousand kilometres away. Remove pack, squeeze down vertical rift, back on wall chest ascender jammed under ribs. Oh oh, can't reach handle of Stop descender, can't go down, hard going up. Grunt, grunt, groan...so this is where the name came from?

Finally pop through, look down, long way up, step across to bolt, don't think about coming up. Down, down. Nice shafts, pity about the thrutchy starts. Horizontal squeeze. Y-belay and 30 metres down. Wow nice! Small hole in floor, tight bend and tiny horizontal streamway, push pack. Pop out into bigger streamway to find others. Off with vertical gear and leave on rock. 1.15.pm, mmm..time for lunch.

Traverse along above tight rift, sharp cave coral, thankful for gloves. Crawl under rockpile, climb into room, which way?, backdown into stream. Larger passage, over boulder, into water. Large side passage, huge showering aven majestically soaring into darkness (another entrance?), stream inlet, no time to explore. Larger streamway, splash along, walls soaking up light and sounds of

conversation. "Nothing like this on Mainland", "What a find", "Pity about the entrance series".

Trundle through hundreds of metres of runthrough streamway, walls 5 to 10 metres apart, the roof? 5 metres to who knows how high, and those avens! Water crawl under decoration, "Any way over", "No, can't see one".

Major junction, main stream and breeze to right, large outflow passage ahead, no time, follow breeze turn right. More pools, some mud. Another junction, stream passage and rockpile to left, somewhere through the rockpile is Exit Cave. Two hours from entrance, time for a snack.

Pull out survey instruments, "Robert why don't you take the tape?, Chris, the instruments?". Begin survey upstream along North-West Passage. Ten point five metres, 36 degrees, minus 2. Three point four five, twenty one degrees, plus five. Station after station. Water level rising, roof lowering, "I think were about to get wet", I'm really late for that appointment now. Bend over, water to waist, survey. "Feels like a sheep-dip", good name *The Sheep-Dip*.

Keep surveying, run out the tape, write it all down and draw the passage. Scout ahead. Station after station. Major side passage, "Leave it for now", "Great breeze". Follow Main Drain.

Magic streamway, river gently flows, must have done so for hundreds of millenia. Nice decoration, large chamber. Meandering passage, phreatic tubes in roof, opens out again. Keep surveying - twenty five metres, five degrees, plus one.

Roof lowering, walls closing in, is this the end at last? Big stream, can't end yet. Pool of water, 15 cm airspace, probably a sump most of the time, "Time to finish?" Keep going, crawl. "Don't make waves", hey, another good name.

Big passage again just when you think that's it. Quite cold here, thankful for furry suit. More showering avens and side passages.

Small waterfalls. Closing down again, very small and muddy but still going, faint breeze. Seven o'clock, fifty two stations, lets call it a day. Turn around and head for surface nearly two and a half kilometres away. Have quick look into side passages as we pass. Survey them another day. On and on, did we really come this far? Major junction, Exit straight ahead, turn left and run up-stream.

Keep running, through water crawl, climb over boulders, turn left climb rockpile, straight ahead. Where has Chris gone? Keep going. Nice decoration. "Hey, I don't remember this squeeze, do you Ian?". "Damn, missed a turn", go back. Hunt around, find correct passage, grab gear and crawl through to base of aven and rope. 9.45p.m.

Others ascend, I'm last. Wait around, eat chocolate. "Off Rope", ah my cue. Up, one, two, three pitches, how many was it 10 or 13? Horizontal squeeze, up again. Rebelay too low, hard to cross, clip on cows-tail, step across and pull up to base of next pitch.

What's next, oh no. Thrutch through that bastard of a tight vertical squeeze, feet dangling in mid air. Nearly through, swear, and wiggle again. At last, standing, and only five more to go.

Pace yourself, keep going, not far now. Ropes been re-rigged. Nasty climb, funny I don't remember this log... that means....yes, the surface and its night. Keep going, only a hundred metres up to the car now. Sounds easy but in rainforest at night.......climb the last boulders...... Midnight, get changed and drive back to Arthur's for dinner and sleep.

What a trip, what a cave. A further 710 metres surveyed, fantastic.

This is a personal account of a surveying trip into Little Grunt early in 1993, comprising Ian Cooper, Chris Norton and Michell ??(SUSS) and Robert Wray (HCG).

The majority of the entrance pitches have been known for some years, but in late1991 a horizontal squeeze was pushed and another shaft found which led to the nearly three kilometres of horizontal streamway below. The cave has been dye-traced to Eastern Passage of Exit Cave but not yet physically connected although exploration has come within several tens of metres. Little Grunt (or should it be Not So Little Grunt?) is therefore, part of the Exit Cave system, the longest and one of the most scientifically important caves in Australia. For a description of a later survey trip see Jason Moule, this volume.

# Little Grunt Jason Moule

Ian Cooper (SUSS), Rabbit, Chris Norton (SUSS) and I all felt pretty crazy today so we decided to continue the survey of Little Grunt (IB 27). Ian, Rabbit and Chris had been in the cave two days before and had surveyed 710m to Grade 5.4. On the way to the cave we stopped at the kiosk at the Ida Bay Railway to get some energy supplies. I brought 7 chocolate bars but Chris got the last "energy max" Moro Bar - drat! We drove to the top of the quarry less than 200m from the entrance.

We started grunting about 12.00. The cave was rigged for the duration of the survey program. There were about 10 pitches to negotiate in the 130m of the caves entrance series, ranging from about 4m to about 35m. Two 11mm ropes were provided by Parks, Wildlife and Heritage, and had been rigged continuously from the entrance to the bottom of the last pitch. Some of these pitches have tight takeoff points at the top which make it "interesting". One hour later at the bottom of the entrance pitches our SRT gear was ripped off and left behind and into the streamway we traversed. Passing therough a few break-down rooms and medium stream passage we finally joined the main streamway and virtually ran along the passage for about 2000m!! There were a few lower sections which required wading or crawling through water.

The purpose of this trip was not to extend the end of the surveyed cave, but rather to explore and survey the numerous small side passages. The first of these was a tight rift which went for about 10m before it got too tight and required an interesting manoeuvre to turn around. The next lead ended in formation chokes, and a large mud flow which was probably from the quarry directly above this section of the cave. Another lead proved to be a high 'level loop that connected back to the main streamway by an impassable hole. After surveying this we began heading back out looking for further side passage.

At a major junction a breezing passage about 2m across and 1m high was entered and found to get lower as we progressed. Chris went ahead to explore while we started to survey the passage. A few minutes later Chris came scurrying back with a huge grin on his face and

exclaimed "This is HUGE!!". So the survey quickened until a tight flattener with a very strong wind where the instruments fogged up and became unreadable. Rabbit was frustrated with the Suntos, wet and lying in the wind which made him cold, so he and Ian independently headed the 1000m+ to the base of the pitches.

Chris and I then headed off to explore this previously unknown section of the cave, the "Major Groan Series". After a crawl in the water, "Snouts in the Trough", the passage opened up into a run-through streamway, this in turn opened into a large aven 8m in diameter and an estimated 40m high. A shower of water was coming out of a hole 0.5m by 2m in the centre at the top!! The volume of air moving through this area suggests a surface connection. If this is the case, the base of the aven is about 250m below the potential entrance. Chris left a 'flag' in the aven and we headed back out to attempt the prusik/ squeeze/ climb/ grunt back to the surface.

Rabbit and Ian were already on the way up so Chris and I geared up and began prusiking. Some of the pitchheads are difficult to get off due to the 'squeezyness'. Its good fun with your body wedged between rock and your legs dangling at the top of a 35m aven. You unclip everything except your cows-tail and haul yourself through a squeeze with brute strength. I was glad I was wearing a Croll as a chest ascender which lay flat against me when squeezing through the worst 'grunt'. We managed to exit the cave at about 9.30 p.m. after an invigorating and enjoyable prusik with 130m of new cave surveyed and a new series discovered.

# Exit Cave: A summary of the 5 year debate. Rebecca Small

The following article was originally written as part of the requirement for the Queen's Scout Award and published here for general interest (Ed.).

The "Exit Cave Saga" (Bunton 1993a) began in early 1988 during an investigation into the effects of logging in the Southern Forests district of Tasmania. During this study the effects of quarrying on karst areas were also recognised. As a result conservation groups

called for the closure of Benders Quarry at Ida Bay, and the boundary of the Exit Cave World Heritage Area were extended to include Exit Cave, the Ida Bay karst area and the fully operational quarry (Clarke 1991). Since then there has been a continuous debate between conservationists and mining groups concerning the only quarry allowed to operate within a World Heritage Area.

While caving groups were monitoring the fly rock and mud avalanches that threatened March Fly Pot (IB-46) and Little Grunt (IB-23) Ray Bender was making plans to re-develop and extend the quarry south to the Pothole region, closer and closer to Exit Cave. Bender claimed that the northern limestone deposits were running out, and if he didn't extend south into the cavernous "grey-band" the quarry would have to shut down (Clarke 1991).

After completing studies, the Division of Mines and Mineral Resources (DMMR) were charged with defining the magnitude of the environmental impact that any quarry extension would have on the Exit Cave system (Bunton 1992a). The Environmental Management Plan (EMP) stated that impacts should be restricted to "...levels which are not significant...", and defines "significant levels" as those which, once identified, cannot be alleviated by management techniques. The EMP also stated that "...no such significant and unacceptable impacts have been identified" (Clarke 1992), yet there was a problem with severe turbidity caused by runoff carrying clay sediment from the quarry's surface down to the cave floor. The quarry's "management technique" was to attempt to filter the runoff by surrounding openings with coarse rock and gravel, or to fill the holes in. Neither method worked.

While the Federal Minister for the Environment, Ros Kelly, continually changed her mind about quarry operations, the Tasmanian Government was seen to support the mining lobby by offering a debate on employment and job creation (Bunton 1992c). It was implied that to save 6 jobs would be far better than to worry about environmental impacts or non-economical resources (Clarke 1991).

Pasminco (the major consumer of Bender's Quarry limestone) has stated that it can import high grade limestone form Japan at a cost of \$27 per tonne, compared to \$35 per tonne of lower quality limestone from Bender's Quarry (Clarke 1991). Higher grade deposits of limestone, suitable for the increased requirements of Pasminco's new supply contract, are available at a site 2 km southwest

of Maydena in the Risbys Basin. This site has been considered as an alternative quarry site, and it's development potential was costed at \$200 000 in a report by the DMMR (Clarke 1991). This site has access to sealed roads, railway, and Pasminco's electrolytic zinc plant. yet it was stated by the DMMR that further study was necessary before the site could be considered. The only core sample from this site had not been examined 19 months later (Clarke 1991). It was suggested that the State Government's decision to allow the quarrying to continue at Ida Bay was due to their refusal to pay compensation for relocation to another site, and similarly, the southern extension of the Quarry would be allowed so as to avoid compensation for restricting operations despite the known impacts (Clarke 1991).

On October 31st, 1992, Ros Kelly ordered all quarrying operations to cease. Negotiations between State and Federal Governments had broken down, and the uproar following recent blasting was powerful (Marr 1992). A report was released (despite attempts to suppress it) by the Department of Parks, Wildlife and Heritage showing that the quarrying had already damaged the caves, it was also revealed that the quarry had been used as a dumping ground for waste products including drums of diesel fuel, runoff from which had already entered the caves of the area. Bender had violated the terms of the World Heritage Area management plan, thus forfeiting claims for compensation from the Federal Government (Bunton 1993b).

Rehabilitation has not yet been fully planned for the quarry area. The conventional "rehabilitation blasting" to round off the benches of rock would cause further damage to the very fragile caves, so an alternative will have to be found. Because of the delicate ecosystems, the introduction of foreign vegetation is unsuitable, but already natural species is establishing itself on the sparse soil deposits on the older quarry benches without the introduction of mulch or soil (Clarke 1992).

Where there's life there's hope. Conservationists and cavers are all hoping that the damage done can be repaired over time and are celebrating the destruction of Australia's longest cave system - Exit Cave.

## The Effects of Quarrying on the Exit Cave System.

\* Studies examining the impacts of mining showed that further quarrying would have unacceptable impacts on the area.

- \* During periods of rain the numerous streams carrying flocculated clay sediments from the disturbed surface drain into fissures, crevices and caves which have been opened up by quarrying. The quarry's methods of filtering this runoff were inadequate, and thus the underground passages have become increasingly silted.
- \* Large cave decorations and gravel deposits have been muddied as a result of quarrying in the 3 km of newly found river passages in Little Grunt.
- \*Severe turbidity was found in the Eastern Passage of Exit Cave following inspections of muddy waters draining into the quarry floor. Dye traces from the quarry and 2 caves south of the surface divide, Little Grunt and National Gallery, were detected in Eastern Passage indicating the hydrological link between the quarry and Exit Cave.
- \* The constant turbidity in Bradley-Chesterman Cave (IB-4) draining from the north side of the quarry was blamed for the non-existence of aquatic fauna.
- \* Continued quarrying and the resulting constant high turbidity would lead to the depletion of aquatic fauna in Exit and the surrounding caves.
- \* High levels of sulphate were detected in the streams and passages where both fluctuating and constant turbidity occurs. If this sulphate is oxidised to sulphuric acid it would cause the secondary dissolution of gour pool and other speleothems in the under quarry extension of Exit Cave (Little Grunt).
- \* The March Fly Pot doline has been partially filled with overburden from the expansion of roadworks.
- \* The entrance of Little Grunt was threatened by mud avalanches caused by the disturbance of earth during quarrying.
- \* Delicate features in both March Fly Pot and Little Grunt have been severely damaged due to recent structural movement. Flowstone has been separated from the cave walls and straws have been reduced to stumps.
- \* Cordite explosive fumes have been detected in both Little Grunt and March Fly Pot.
- \* Pollution including oil and other petroleum products have been recorded in Bradley-Chesterman Cave on several occasions. This was later discovered to have been caused from runoff from a waste dump on the quarry site.

\* The risk of artificially draining or diverting natural water flows in the karst was seen as a serious threat during borehole drilling. This would lead to dehydration of tubes etc and potential surface or underground collapse.

## Summary of sequence of events during the Exit Cave Saga.

1987 - '88 - Exit Cave and the Ida Bay karst were identified as a "significant World Heritage Area" during an Inquiry into the effects of logging in the area.

1989 - A series of studies were commenced to determine the impact of the quarry on the area. One was conducted by the Division of Mines and Mineral Resources into the effects of blasting at the Ida Bay quarry on "nearby cave systems", a study to locate an alternative quarryable limestone supply in Southern Tasmania and an economic report. Another study by Parks, Wildlife and Heritage examined the geomorphology, hydrology, cave biology, cave palaeontology, archaeological record, surface botany, visual impacts, estimations of remaining limestone reserves and viability of continued quarrying without expansion.

August 1989 - A moratorium was placed on quarry expansion by the Tasmanian Government due to the outcome of the studies of the area.

November 1989 - Exit Cave and the surrounding area, quarry included, was listed as a World Heritage Area.

Late 1991 - A major new extension was discovered in Little Grunt and was found to lead directly beneath the quarry.

- Reports begun in 1989 were completed. These showed a number of hydrological connections with Exit Cave, and documented the damage done by quarrying.

February 1992 - A blast of 12 000 to 20 000 tonnes was approved by Ros Kelly, Federal Minister for the Environment, and protesters were removed before blasting.

July 1992 - Pasminco's new supply contract required higher grade limestone.

August 1992 - The Federal Minister for the Environment approved a further blast of 25 000 tonnes, then stopped blasting but allowed quarry operations to continue for 6 months.

October 1992 - After breakdown of negotiations between Tasmanian and Federal

Governments, all quarry work was ordered to cease.

Currently - It is reported that the quarry will remain closed after the release of a report by Parks, Wildlife and Heritage despite attempts to suppress it. This report outlined the damage done to the caves be quarrying. It was also revealed that the quarry was being used as an illegal dumping ground for wastes breaching the conditions of the World Heritage Area management plan.

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# I'm a Speleo... Robert Wray.

A little tune composed by several of us and performed at the Cavers Dinner, Tas Trog '93. Any reference to any persons living, dead or otherwise is purely coincidental. and should not be inferred

Sung to the tune of the well known "Lumberjacks Song". Appologies to Monty Python and music critics.

I'm a Speleo and I'm OK, I drink all night and I cave all day Avoid all stals I miss my lunch I die for the lavatory. I'm a Speleo and I'm OK,
I go real deep and loose my way.
I wear big boots,
I crawl in mud,
And shiver in the stream.

I'm a Speleo and I'm OK, I hang from ropes, stay on belay. I loose my light But I don't fright C'os I'm not scared at night.

I'm a Speleo and I'm OK, Nothing I'll stop me thats in my way I crawl through chairs, I get real stuck, I guess I'm out of luck.

I'm a Speleo and I'm OK, I cave with Vic when I'm away. He came from Rawleigh Who misses him surely, He might get home one day.

I'm a Novice and I'm OK, I started caving yesterday. Dolphin, jeans, An old teeshirt, My Mum 'll hate this dirt.

I'm a Heavy and I'm OK, I love my rope, practice everyday. I tour the world, I crawl and squeeze, The caves are Eberhardt.

I'm a surveyor and I'm OK, I measure caves along the way. I use a tape To get the shape, And draw it in the bar.

I'm a Barrister and I'm OK, I've taked real hard both night and day. I save Ghost Bats, Near been blown up, And made it to the Bar.

I'm ASF and I'm OK, I paid my dues just yesterday. Avoid all caves, But have my say, I fight and bitch and whinge.

SSS, TCC, Highland, Hills and VSA, Marco, Arthur, Elery, And Aunty Jules *et Al*.